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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,568	11/19/2003	Setsuo Mishima	Q78557	5060

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EXAMINER	
MCNELIS, KATHLEEN A	
ART UNIT	**PAPER NUMBER**
1742	

DATE MAILED: 09/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/715,568	MISHIMA ET AL.	
	Examiner	Art Unit	
	Kathleen A. McNelis	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claims Status

Claims 1-14 remain for examination wherein claims 1, 5 and 6 are amended and claims 9-14 are new.

Acknowledgement of RCE

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CRF 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.115, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/27/2006 has been entered.

Status of Previous Rejections

The previous rejection of claims 1-8 under 35 U.S.C. 103(a) as being unpatentable over JP 212 in view of Floreen and JP '957 is maintained, however new grounds is provided for the rejection of claims 4, 7 and 8.

Examiner's Comments

Examiner thanks applicant for pointing out the typographical error on page 3 of the 3/7/2006 office action. The reference to claims 4, 5 and 6 was correctly interpreted by applicant as claims 4, 7 and 8.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 5, 6, 9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-214212 (JP '212) in view of Floreen (U.S. Pat. No. 4,443,254) and JP-56-090957 (JP '957).

JP '212 in view of Floreen and JP '957 is applied as discussed in the 3/7/2006 office action.

Further, regarding the amended limitation that maraging steel contain less than 15 ppm of Mg, Floreen discloses that Magnesium is added for deoxidizing and/or malleabilizing purposes (col. 3 lines 11-16) up to 0.25% (col. 5 lines 9-10). A stated objective in JP '212 is reduction of impurities including oxygen (¶ 0002). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use magnesium as taught by Floreen in the maraging steel production process of JP '212 as a deoxidizer as taught by Floreen. The range of up to 0.25% overlaps the claimed ranges of $\geq$ 5 ppm (claim 1) and $0 < Mg < 15$ ppm (claims 1, 5 and 6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to control the amount of Mg addition to between 5 and 15 ppm since Floreen teaches equal utility of Mg as an additive for deoxidization up to 0.25%.

With respect to claim 9, JP '212 discloses that the TiN inclusion is 10 μm or less (¶ 0004), which is within the claimed range of not more than 15 μm. While JP '212 in view of Floreen and JP '957 does not recite that the oxide type non-metallic inclusions have maximum length of not more than 20 μm, the composition and method of making the maraging steel taught by JP '212 in view of Floreen and JP '957 is substantially the same as that of the instant invention. Therefore, one or ordinary skill in the art would expect the size of inclusions to be substantially the same in JP '212 in view of Floreen and JP '957 as the instant invention.

With respect to claims 11-14, the limitation that the method (claims 11-12) produces or the component is (claims 12 and 13) a component of continuously variable transmissions is a recitation of the intended use. However, the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since the composition and method of making the maraging steel taught by JP '212 in view of Floreen and JP '957 is substantially the same as that of the instant invention, it is examiner's position that the prior art method is capable of producing a thin strip for a component of continuously variable transmissions.

Claims 4, 7, 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001-214212 (JP '212) in view of Floreen (U.S. Pat. No. 4,443,254) and JP-56-090957 (JP '957) as applied to claims 1, 5, 6 and 9 alone or in further view of Uehara et al. (U.S. Pat. No. 6,767,414).

JP '212 in view of Floreen and JP '957 is applied as discussed above regarding claims 1, 5, 6 and 9.

JP '212 in view of Floreen and JP '957 discloses manufacturing a thin strip of 3.5 mm thickness (¶ 0017), which is close enough to the claimed range of not more than 0.5 mm that one or ordinary skill in the art would expect the same results.

Alternatively, JP '212 in view of Floreen and JP '957 does not teach that the thin strip is rolled to a thickness of nor more than 0.5 mm.

Uehara et al. discloses a maraging steel with composition similar to that of JP '212 in view of Floreen and JP '957 (abstract) where maraging steels were melted using VIM and hot rolled to a thickness of about 0.3 mm (col. 8 lines 6-20). Therefore one of ordinary skill in the art would

expect that the maraging steel produced by JP '212 in view of Floreen and JP '957 could be rolled to a thickness of not more than 0.5mm as taught by Uehara et al. since Uehara et al. discloses producing a 0.5mm strip using a maraging steel of similar composition and produced in a similar manner as JP '212 in view of Floreen and JP '957.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith Jr. et al. (U.S. Pat. No. 4,871,511).

Smith Jr. et al. discloses a maraging steel containing at least 1% and up to 1.25% Ti (col. 1 lines 52-66), which is within the claimed range of between 0.3% and 2.0% Ti. Smith Jr. et al. discloses processing by melting, followed by vacuum induction melting followed by vacuum arc remelting (col. 2 lines 54 – 60). Smith Jr. et al. discloses that up to 0.25% of Mg may be present (col. 2 lines 7-12), which overlaps the claimed range of between 5 and 15 ppm of Mg. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include between 5 and 15 ppm of Mg, since Smith Jr. et al. teaches equal utility for the range of up to 0.25%.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith Jr. et al. as applied to claim 1, and further view of Uehara et al. (U.S. Pat. No. 6,767,414).

Smith Jr. et al. is applied as discussed regarding claim 1.

Further, Smith Jr. et al. discloses production of hot rounds of 3-inch diameter.

Smith Jr. et al. does not disclose producing a thin strip is rolled to a thickness of nor more than 0.5 mm.

Uehara et al. discloses a maraging steel with composition similar to that of Smith Jr. et al. where maraging steels were melted using VIM and hot rolled to a thickness of about 0.3 mm (col. 8 lines 6-20). Therefore one of ordinary skill in the art would expect that the maraging steel

produced by Smith Jr. et al. could be rolled to a thickness of not more than 0.5mm to produce a thin strip as taught by Uehara et al., since the composition and method of producing the two steels are essentially the same or similar.

Additionally Cited

The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sadowski et al. (U.S. Pat. No. 6,262,82) discloses a high strength maraging steel (title and abstract) and teaches that additions of malleableizing and deoxidizing amounts of elements including magnesium can be beneficial (col. 5 lines 38-40).

Response to Arguments

Applicant's arguments filed 7/27/2006 have been fully considered but they are not persuasive.

Applicant argues that:

1. JP '212 is preformed by excluding inclusion-forming substances through-out the production process, whereas in the instant invention Mg is added to form MgO as a temporary inclusion which is then decomposed in vacuum remelting.
2. Floreen discloses that Mg can optionally be added to cobalt-free maraging steel to deoxidize and/or malleabilize, however Floreen is silent regarding the inclusion refining method used or specifics of malleabilizing with Mg. The production process of Floreen discloses a bar of steel produced by VIM, soaking and hot rolling, but is not directed to refining inclusions. Since the Mg is added to reduce oxygen, it is not necessarily present in the final cast ingot. Applicants believe that according to common knowledge in the art, Mg can fix impurity sulfur which

deteriorates steel malleability. When sulfur is fixed in Floreen, the ingot will contain MgS, which will decompose if the ingot or electrode is remeleted under vacuum, the sulfur remaining in the steel and the Mg evaporating. Therefore one of ordinary skill in the art would not combine JP '212 with Floreen.

3. JP '957 discloses a maraging steel that contains not less than 0.001 % (or 0.001% to 0.1% Mg or Ca based on claims) for purpose of improving SCC resistance in steel. However, JP '957 is silent regarding inclusion refining and does not disclose VAR. From the disclose of JP '957, one of ordinary skill in the art would understand that VAR is unnecessary when sulfur is fixed by Mg, and further would understand that active melting is prevented by the additive Mg by preventing segregation of Mg to the grain boundaries. One of ordinary skill in the art would not have performed vacuum remelting on steel where Mg was fixed with sulfur, and would therefore not have combined JP '212 with JP '957.

Examiner's responses are as follows:

Applicants' arguments suggest that one of ordinary skill in the art would not combine the addition of Mg for deoxidation as taught by Floreen and JP '957 with the vacuum remelting process of JP '212 for the reasons discussed in applicant's 7/27/06 arguments and summarized above.

Examiner's position is that the arguments of counsel cannot take the place of evidence in the record. The arguments draw conclusions based on information that applicants assert they believe to be common knowledge in the art, but which is not recited in the applied prior art. To overcome the rejection using these arguments, applicant may

file an appropriate affidavit or declaration for consideration regarding inoperability or unobviousness of combining the prior art (see M.P.E.P § 716.01(c) II).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathleen A. McNelis whose telephone number is 571 272 3554. The examiner can normally be reached on M-F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KAM
9/21/2006

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